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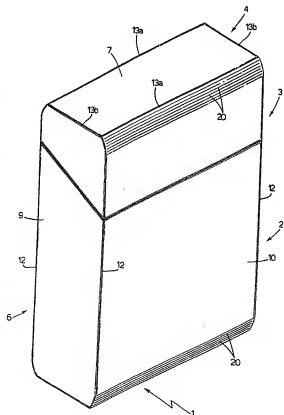
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(54) Title: RIGID CONTAINER FOR TOBACCO ARTICLES



(57) Abstract: A rigid, substantially parallelepiped-shaped container (1) for tobacco articles, having two end walls (7, 8), and a lateral surface (6) bounded by the end walls (7, 8) and defined by two major lateral walls (10, 11) and two minor lateral walls (9); at least one lateral wall (9; 10; 11) has at least one outwardly convex profile, is connected to an end wall (7; 8) along a respective sharp transverse edge (13), and forms, with the end wall (7; 8), a respective substantially obtuse dihedral angle; or at least one end wall (7; 8) has at least one outwardly convex profile, is connected to a lateral wall (9; 10; 11) along a respective sharp transverse edge (13), and forms, with the lateral wall (9; 10; 11), a respective substantially obtuse dihedral angle.

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## RIGID CONTAINER FOR TOBACCO ARTICLES

TECHNICAL FIELD

10 The present invention relates to a rigid container for tobacco articles.

BACKGROUND ART

In the following description, reference is made, purely by way of a non-limiting example and for the sake  
15 of brevity, to packets of cigarettes.

Rigid hinged-lid packets of cigarettes are normally in the form of a rectangular-section parallelepiped, and comprise two, respectively top and bottom, end walls; and a lateral surface bounded by the end walls and defined by  
20 two, respectively front and rear, major lateral walls, and by two minor lateral walls. Each minor lateral wall is connected to both the major lateral walls at two sharp square longitudinal edges, and each end wall is connected to the lateral walls at four sharp square transverse  
25 edges.

Rigid packets of the above type have several drawbacks by being unanatomical in shape, and by causing rapid wear of any clothing fabrics with which they come

into contact.

The above drawbacks are at least partly eliminated by packets of the type described in patents EP-B1-0204933 and EP-B1-0205766, in which the packets have four beveled  
5 or rounded longitudinal edges, and eight sharp square transverse edges. Packets with beveled or rounded edges of the above type, however, have the drawback of the lid failing to close the cup-shaped bottom container properly, on account of the difficulty in forming two  
10 coincident rounded or beveled edges, and, not being particularly anatomical in shape, are relatively awkward to handle.

#### DISCLOSURE OF THE INVENTION

It is an object of the present invention to provide  
15 a rigid container for tobacco articles, designed to eliminate the aforementioned drawbacks.

According to the present invention, there is provided a rigid, substantially parallelepiped-shaped container for tobacco articles, comprising two end walls,  
20 and a lateral surface bounded by the end walls and defined by two, respectively front and rear, major lateral walls, and by two minor lateral walls; the container being characterized in that at least one lateral wall has at least one outwardly convex profile,  
25 is connected to an end wall along a respective sharp transverse edge, and forms, with the end wall, a respective substantially obtuse dihedral angle.

According to the present invention, there is also

provided a rigid, substantially parallelepiped-shaped container for tobacco articles, comprising two end walls, and a lateral surface bounded by the end walls and defined by two, respectively front and rear, major lateral walls, and by two minor lateral walls; the container being characterized in that at least one end wall has at least one outwardly convex profile, is connected to a lateral wall along a respective sharp transverse edge, and forms, with the lateral wall, a respective substantially obtuse dihedral angle.

#### BRIEF DESCRIPTION OF THE DRAWINGS

A number of non-limiting embodiments of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a front view in perspective of a packet of cigarettes in accordance with the present invention;

Figures 2 to 5 show front, side, top and rear views respectively of the Figure 1 packet;

Figure 6 shows a plan view of a blank used to produce the Figure 1 packet;

Figure 7 shows a front view in perspective of a further embodiment of a packet of cigarettes in accordance with the present invention;

Figures 8 to 11 show front, side, top and rear views respectively of the Figure 7 packet;

Figure 12 shows a plan view of a blank used to produce the Figure 7 packet;

Figure 13 shows a front view in perspective of a further embodiment of a packet of cigarettes in accordance with the present invention;

Figures 14 to 17 show front, side, top and rear views respectively of the Figure 13 packet;

Figure 18 shows a plan view of a blank used to produce the Figure 13 packet;

Figure 19 shows a front view in perspective of a further embodiment of a packet of cigarettes in accordance with the present invention;

Figures 20 to 23 show front, side, top and rear views respectively of the Figure 19 packet;

Figure 24 shows a plan view of a blank used to produce the Figure 19 packet.

15 BEST MODE FOR CARRYING OUT THE INVENTION

Number 1 in the accompanying drawings indicates as a whole a series of containers for tobacco articles, defined by rigid packets of cigarettes, each of which normally contains an orderly parallelepiped-shaped group of cigarettes (not shown for the sake of simplicity) wrapped in a sheet of foil wrapping material.

Each packet 1 comprises a cup-shaped bottom container 2 having an open top end 3; and a cup-shaped top lid 4 hinged to container 2 along a hinge 5 to rotate, with respect to container 2, between an open position (not shown) and a closed position (shown in the accompanying drawings) respectively opening and closing end 3.

In the closed position, lid 4 imparts to packet 1 a substantially rectangular parallelepiped shape defined by a lateral surface 6, and by two facing, respectively top and bottom, end walls 7 and 8, which are flat, identical and parallel and bound lateral surface 6.

Lateral surface 6 comprises two parallel, facing, flat minor lateral walls 9; and two flat, facing major lateral walls 10 and 11 crosswise to minor lateral walls 9. More specifically, one major lateral wall 10 defines a front wall of packet 1, and the other major lateral wall 11 defines a rear wall of packet 1.

Packet 1 also comprises a known collar (not shown), which is folded into a U and fitted (glued) inside cup-shaped container 2 so as to project partly outwards of end 3 and engage a corresponding inner surface of lid 4 when lid 4 is in said closed position.

Four longitudinal edges 12 are defined between minor lateral walls 9 and major lateral walls 10, 11; and eight transverse edges 13 are defined between end walls 7, 8 and lateral walls 9, 10, 11, are divided into major transverse edges 13a and minor transverse edges 13b, and are crosswise to longitudinal edges 12.

As shown in Figures 6, 12, 18 and 24, each packet 1 is formed from a corresponding flat, substantially elongated rectangular blank 14, the parts of which are indicated, where possible, using the same reference numbers, with superscripts, as for the corresponding parts of packet 1. More specifically, packet 1 in Figures

1-5 is formed from the blank 14 in Figure 6; packet 1 in Figures 7-11 is formed from the blank 14 in Figure 12; packet 1 in Figures 13-17 is formed from the blank 14 in Figure 18; and packet 1 in Figures 19-23 is formed from the blank 14 in Figure 24.

Each blank 14 (which has a central longitudinal axis 15) comprises two longitudinal crease lines 16; and a number of transverse crease lines 17 defining, between the two longitudinal crease lines 16, a panel 10' forming a top portion of front wall 10 (and in particular the portion forming part of lid 4), a panel 7' forming top end wall 7, a panel 11' forming rear wall 11, a panel 8' forming bottom end wall 8, and a panel 10" forming a bottom portion of front wall 10 (and in particular the portion forming part of container 2).

Each panel 10', 10", 11' has two lateral wings 9' and 9" located on opposite sides of relative panel 10', 10", 11' and separated from relative panel 10', 10", 11' by longitudinal crease lines 16. Panel 10' has a reinforcing flap 18; and each wing 9', 9" of panel 11' has substantially rectangular longitudinal appendixes 19 located at opposite ends of wing 9', 9" and aligned longitudinally with each other.

When forming each packet 1, lateral wings 9' and 9" are superimposed and glued together to define the minor lateral walls 9 of packet 1; and each longitudinal appendix 19 is folded squarely with respect to relative lateral wing 9' or 9", and is superimposed on and glued



to an inner surface of a relative panel 7' or 8' to define an inner portion of a relative end wall 7 or 8 of packet 1 respectively.

Each major lateral wall 10, 11 of packet 1 in  
5 Figures 1-5 has an outwardly convex profile, is connected to each end wall 7, 8 along a respective sharp major transverse edge 13a, and forms, with each end wall 7, 8, a respective substantially obtuse dihedral angle. More specifically, each major lateral wall 10, 11 of packet 1  
10 in Figures 1-5 comprises a flat central portion, and two lateral bands precreased by transverse crease lines 20; and each lateral band curves with its concavity facing inwards to connect the central portion to the corresponding end wall 7, 8, and to form with the end  
15 wall 7, 8 a respective substantially obtuse dihedral angle. Each minor lateral wall 9 is substantially rectangular, and has beveled corners to adapt to the outwardly convex profile of major lateral walls 10, 11.

As shown in Figure 6, blank 14 corresponding to  
20 packet 1 in Figures 1-5 has a number of transverse crease lines 20 for defining said lateral bands of major lateral walls 10, 11. More specifically, blank 14 in Figure 6 has transverse crease lines 20 in panels 10', 10" and 11', close to panels 7' and 8'.

25 Each minor lateral wall 9 of packet 1 in Figures 7-11 has an outwardly convex profile, is connected to each end wall 7, 8 along a respective sharp minor transverse edge 13b, and forms, with each end wall 7, 8, a

respective substantially obtuse dihedral angle. More specifically, each minor lateral wall 9 of packet 1 in Figures 7-11 comprises a flat central portion, and two lateral bands precreased by transverse crease lines 21; and each lateral band curves with its concavity facing inwards to connect the central portion to the corresponding end wall 7, 8, and to form with the end wall 7, 8 a respective substantially obtuse dihedral angle. Each major lateral wall 10, 11 is substantially rectangular, and has beveled corners to adapt to the outwardly convex profile of minor lateral walls 9.

As shown in Figure 12, blank 14 corresponding to packet 1 in Figures 7-11 has a number of transverse crease lines 21 for defining said lateral bands of minor lateral walls 9. More specifically, blank 14 in Figure 12 has transverse crease lines 21 in wings 9' and 9'', close to panels 7' and 8'.

Each end wall 7, 8 of packet 1 in Figures 13-17 has an outwardly convex profile, is connected to each minor lateral wall 9 along a respective sharp minor transverse edge 13b, and forms, with each minor lateral wall 9, a respective substantially obtuse dihedral angle. More specifically, each end wall 7, 8 of packet 1 in Figures 13-17 comprises a flat central portion, and two lateral bands precreased by transverse crease lines 22; and each lateral band curves with its concavity facing inwards to connect the central portion to the corresponding minor lateral wall 9, and to form with the minor lateral wall 9

a respective substantially obtuse dihedral angle. Each major lateral wall 10, 11 is substantially rectangular, and has beveled corners to adapt to the outwardly convex profile of end walls 7, 8.

5 As shown in Figure 18, blank 14 corresponding to packet 1 in Figures 13-17 has a number of transverse crease lines 22 for defining said lateral bands of end walls 7, 8. More specifically, blank 14 in Figure 18 has transverse crease lines 22 in panels 7' and 8' and in  
10 appendixes 19, close to wings 9' and 9".

Each end wall 7, 8 of packet 1 in Figures 19-23 has an outwardly convex profile, is connected to each major lateral wall 10, 11 along a respective sharp major transverse edge 13a, and forms, with each major lateral  
15 wall 10, 11, a respective substantially obtuse dihedral angle. More specifically, each end wall 7, 8 of packet 1 in Figures 19-23 comprises a flat central portion, and two lateral bands precreased by transverse crease lines 23; and each lateral band curves with its concavity  
20 facing inwards to connect the central portion to the corresponding major lateral wall 10, 11, and to form with the major lateral wall 10, 11 a respective substantially obtuse dihedral angle. Each minor lateral wall 9 is substantially rectangular, and has beveled corners to  
25 adapt to the outwardly convex profile of end walls 7, 8.

As shown in Figure 24, blank 14 corresponding to packet 1 in Figures 19-23 has a number of transverse crease lines 23 for defining said lateral bands of end

walls 7, 8. More specifically, blank 14 in Figure 24 has transverse crease lines 23 in panels 7' and 8', close to panels 10', 10" and 11'.

In a preferred embodiment, crease lines 16 and 17 (also referred to as main crease lines) are weaker than transverse crease lines 20, 21, 22, 23 (also referred to as secondary crease lines) on account of crease lines 16 and 17 defining sharp edges 12 and 13, whereas transverse crease lines 20, 21, 22, 23 serve to slightly curve the respective lateral bands with no sharp edges.

Various tests have shown that packet 1 of cigarettes as described above produces relatively little wear of clothing fabrics coming into contact with packet 1, and at the same time is anatomically shaped for easy handling.

Moreover, the longitudinal edges 12 of front wall 10 being square sharp edges, and since it is relatively easy to form two coincident square profiles, lid 4 provides for accurately closing cup-shaped bottom container 2.

Finally, said known collar (not shown) is so shaped as to be easy to produce and fit to blank 14, by the longitudinal edges 12 in the area affected by the collar being sharp square edges. In other words, in packets 1 in the accompanying drawings, the collar is the standard type commonly used in perfectly parallelepiped-shaped packets of cigarettes having all sharp square edges.

Clearly, changes may be made to packets 1 as described herein, such as forming partly convex walls, or

forming only one as opposed to two opposite facing convex walls.

Given the numerous advantages of packets 1 of cigarettes described above, the form of packets 1 may  
5 also be applied integrally to the manufacture of other types of rigid containers for tobacco articles, such as a carton of cigarettes, which is substantially identical to one of packets 1 described above, except that, as opposed to a group of cigarettes, it contains a group of packets  
10 of cigarettes normally of the same shape as the carton.

## CLAIMS

1) A rigid, substantially parallelepiped-shaped container for tobacco articles, comprising two end walls (7, 8) , and a lateral surface (6) bounded by the end walls (7, 8) and defined by two, respectively front and rear, major lateral walls (10, 11), and by two minor lateral walls (9); the container (1) being characterized in that at least one lateral wall (9; 10; 11) has at least one outwardly convex profile, is connected to an end wall (7; 8) along a respective sharp transverse edge (13), and forms, with the end wall (7; 8), a respective substantially obtuse dihedral angle.

2) A container as claimed in Claim 1, characterized in that each said major lateral wall (10, 11) has at least one outwardly convex profile, is connected to an end wall (7; 8) along a respective sharp transverse edge (13), and forms, with the end wall (7; 8), a respective substantially obtuse dihedral angle.

3) A container as claimed in Claim 1, characterized in that each said minor lateral wall (9) has at least one outwardly convex profile, is connected to an end wall (7; 8) along a respective sharp transverse edge (13), and forms, with the end wall (7; 8), a respective substantially obtuse dihedral angle.

4) A container as claimed in any one of Claims 1 to 3, characterized in that each said lateral wall (9; 10; 11) having an outwardly convex profile comprises a flat

central portion, and a lateral band precreased by transverse crease lines (20; 21); which lateral band is curved with its concavity facing inwards to connect the central portion to the corresponding end wall (7; 8) and  
5 to form with the end wall (7; 8) a respective said substantially obtuse dihedral angle.

5) A container as claimed in Claim 1, characterized in that at least one lateral wall (9; 10; 11) has an outwardly convex profile, is connected to each said end  
10 wall (7; 8) along a respective sharp transverse edge (13), and forms with each end wall (7; 8) a respective substantially obtuse dihedral angle.

6) A container as claimed in Claim 1, characterized in that each said major lateral wall (10, 11) has an  
15 outwardly convex profile, is connected to each said end wall (7; 8) along a respective sharp transverse edge (13), and forms with each end wall (7; 8) a respective substantially obtuse dihedral angle.

7) A container as claimed in Claim 1, characterized  
20 in that each said minor lateral wall (9) has an outwardly convex profile, is connected to each said end wall (7; 8) along a respective sharp transverse edge (13), and forms with each end wall (7; 8) a respective substantially obtuse dihedral angle.

25 8) A container as claimed in any one of Claims 5 to 7, characterized in that each said lateral wall (9; 10; 11) having an outwardly convex profile comprises a flat central portion, and two lateral bands precreased by

transverse crease lines (20; 21); each lateral band being curved with its concavity facing inwards to connect the central portion to the corresponding end wall (7; 8) and to form with the end wall (7; 8) a respective said substantially obtuse dihedral angle.

9) A rigid, substantially parallelepiped-shaped container for tobacco articles, comprising two end walls (7, 8), and a lateral surface (6) bounded by the end walls (7, 8) and defined by two, respectively front and rear, major lateral walls (10, 11), and by two minor lateral walls (9); the container (1) being characterized in that at least one end wall (7; 8) has at least one outwardly convex profile, is connected to a lateral wall (9; 10; 11) along a respective sharp transverse edge (13), and forms, with the lateral wall (9; 10; 11), a respective substantially obtuse dihedral angle.

10) A container as claimed in Claim 9, characterized in that each said end wall (7; 8) has at least one outwardly convex profile, is connected to a lateral wall (9; 10; 11) along a respective sharp transverse edge (13), and forms, with the lateral wall (9; 10; 11), a respective substantially obtuse dihedral angle.

11) A container as claimed in Claim 9 or 10, characterized in that each said end wall (7; 8) having at least one outwardly convex profile comprises a flat central portion, and at least one lateral band precreased by transverse crease lines (22; 23); which lateral band is curved with its concavity facing inwards to connect



the central portion to the corresponding lateral wall (9; 10; 11) and to form with the lateral wall (9; 10; 11) a respective said substantially obtuse dihedral angle.

12) A container as claimed in Claim 9, characterized  
5 in that at least one said end wall (7; 8) has an outwardly convex profile, is connected to two corresponding opposite, facing lateral walls (9; 10; 11) along respective sharp transverse edges (13), and forms with the lateral walls (9; 10; 11) respective  
10 substantially obtuse dihedral angles.

13) A container as claimed in Claim 9, characterized in that each said end wall (7; 8) has an outwardly convex profile, is connected to two corresponding opposite, facing lateral walls (9; 10; 11) along respective sharp  
15 transverse edges (13), and forms with the lateral walls (9; 10; 11) respective substantially obtuse dihedral angles.

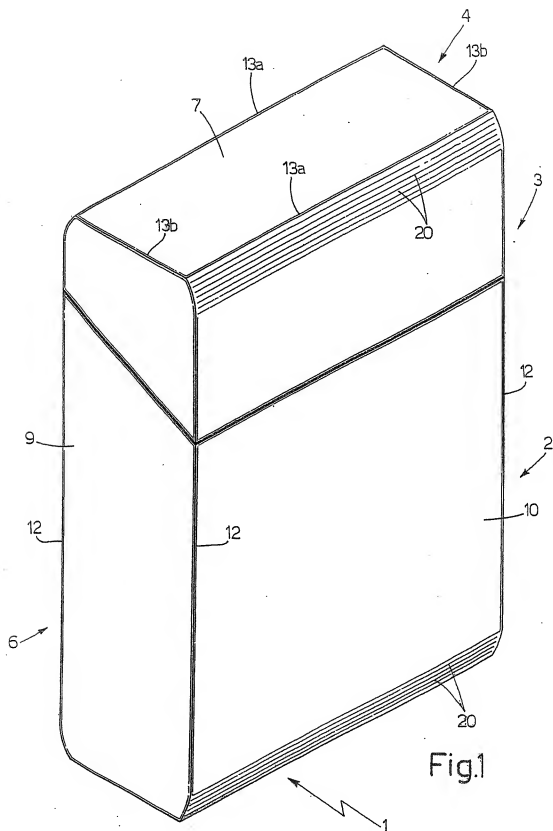
14) A container as claimed in Claim 9, characterized in that each said end wall (7; 8) has an outwardly convex  
20 profile, is connected to each said major lateral wall (10, 11) along a respective sharp transverse edge (13), and forms with the major lateral wall (10, 11) a respective substantially obtuse dihedral angle.

15) A container as claimed in Claim 9, characterized  
25 in that each said end wall (7; 8) has an outwardly convex profile, is connected to each said minor lateral wall (9) along a respective sharp transverse edge (13), and forms with the minor lateral wall (9) a respective

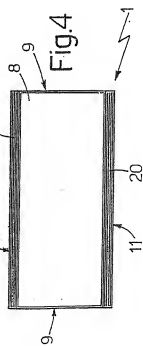
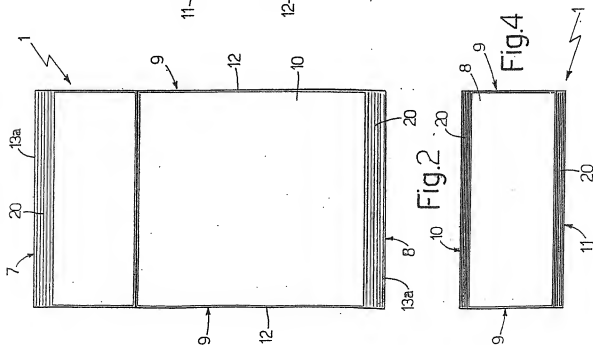
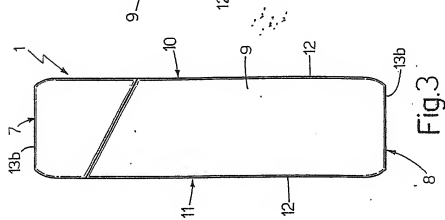
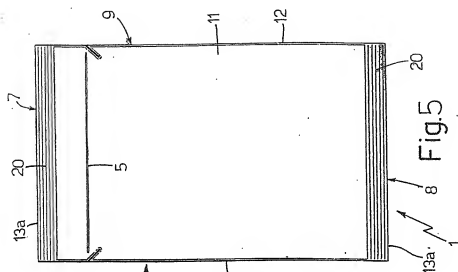
substantially obtuse dihedral angle.

- 16) A container as claimed in any one of Claims 12 to 15, characterized in that each said lateral wall (9; 10; 11) having an outwardly convex profile comprises a flat central portion, and two lateral bands precreased by transverse crease lines (22; 23); each lateral band being curved with its concavity facing inwards to connect the central portion to the corresponding end wall (7; 8) and to form with the end wall (7; 8) a respective said substantially obtuse dihedral angle.

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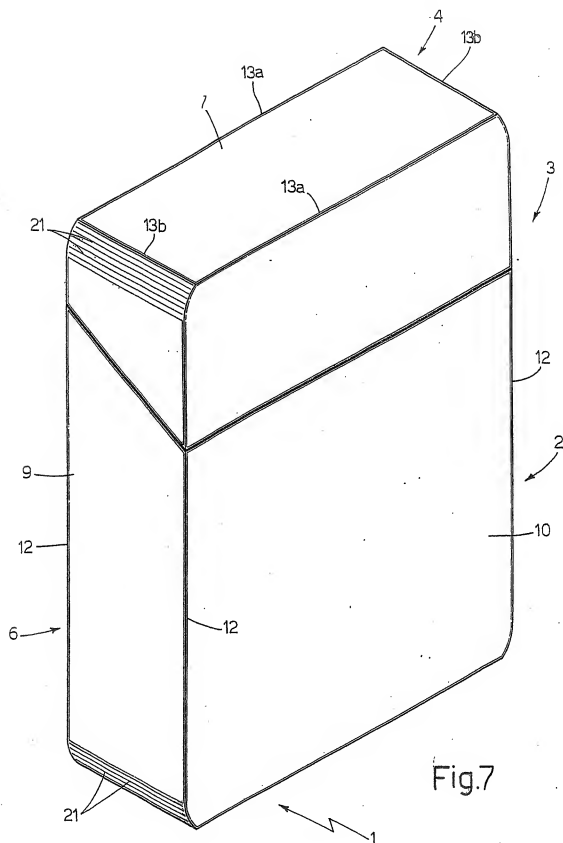
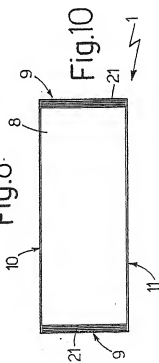
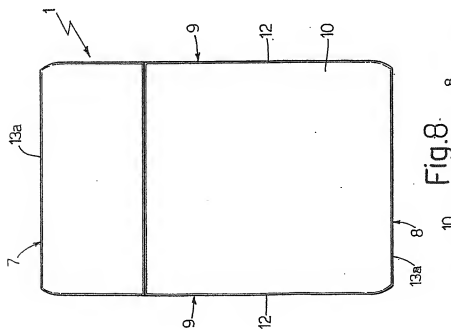
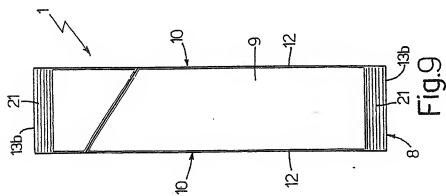
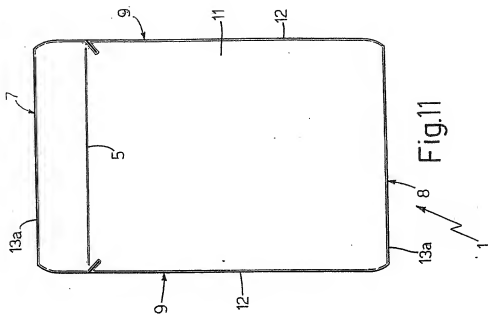
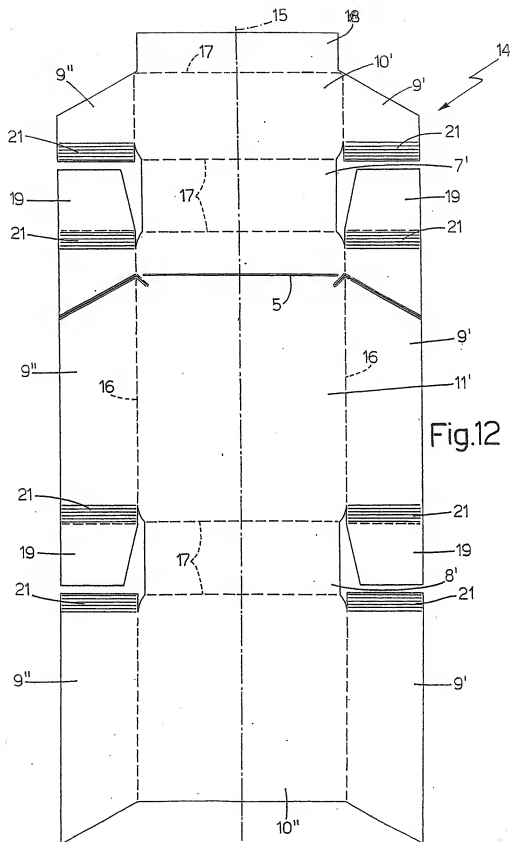


Fig.7

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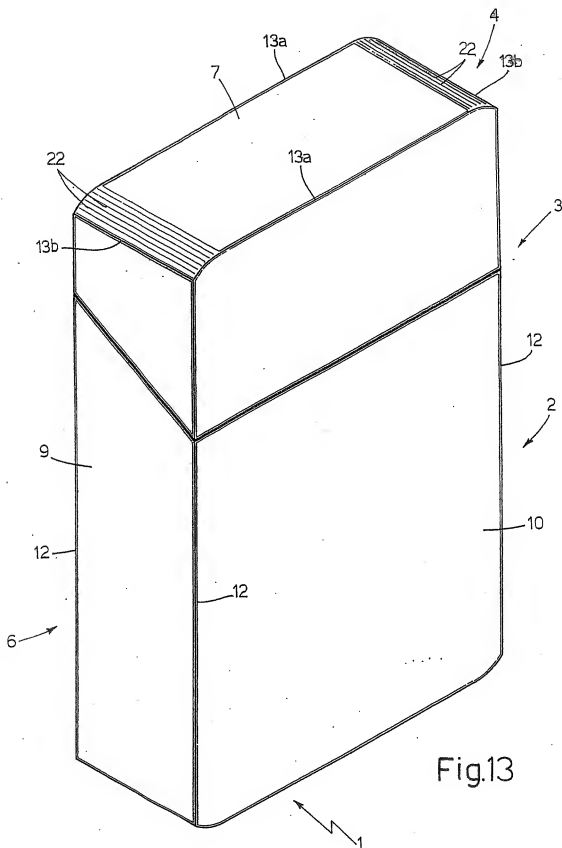
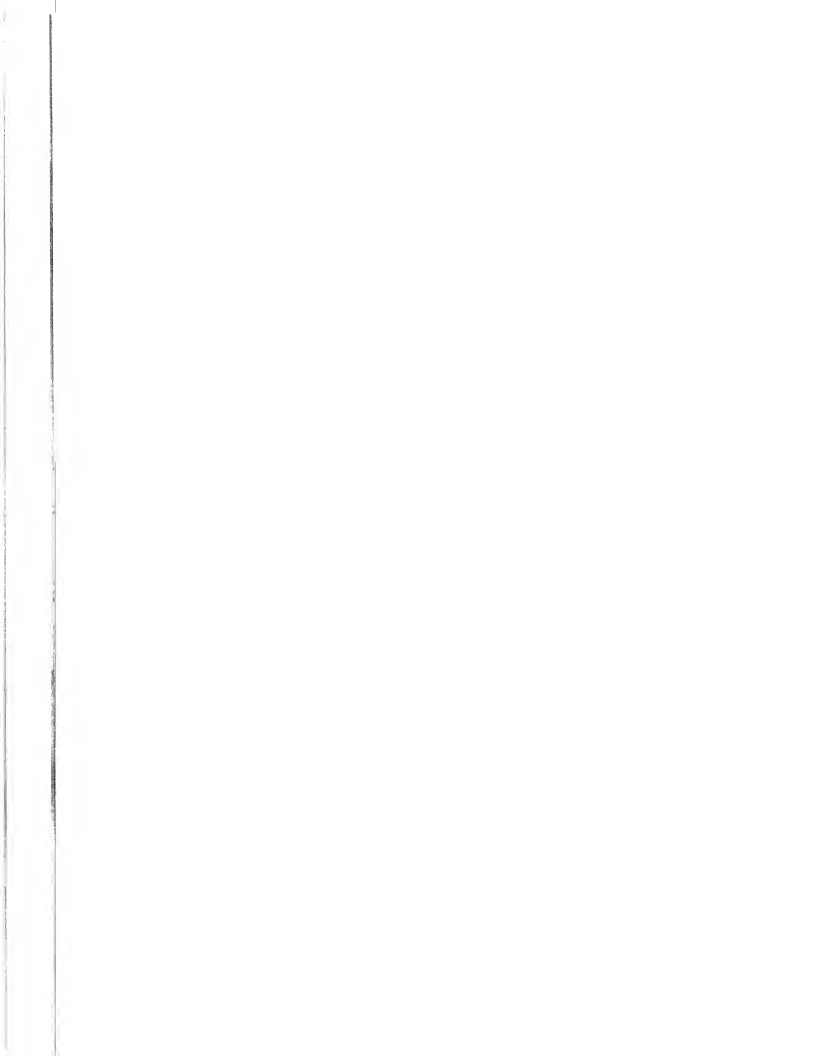
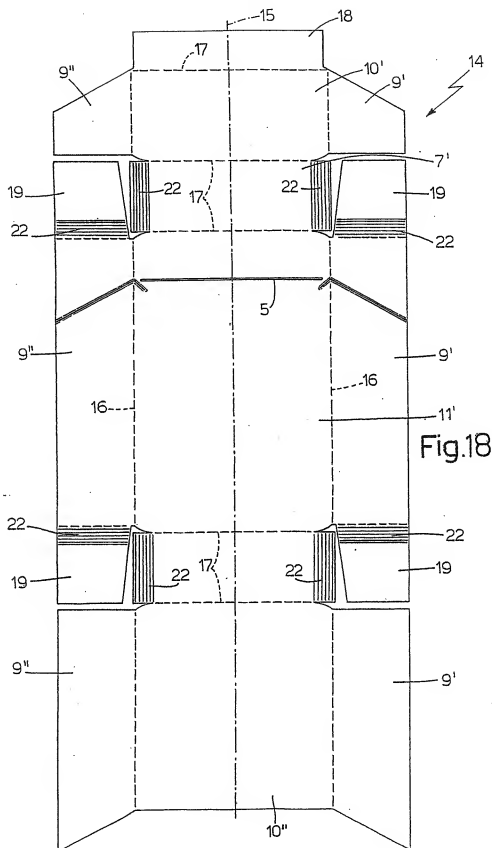


Fig.13



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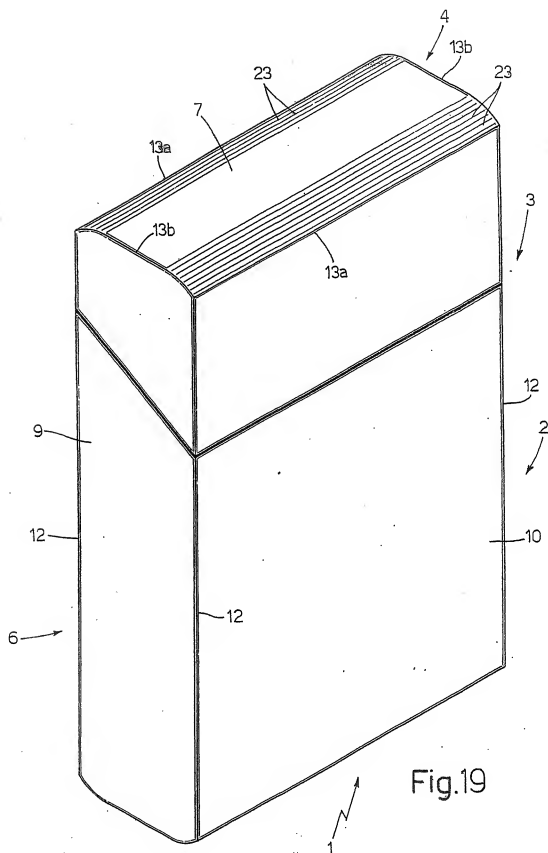
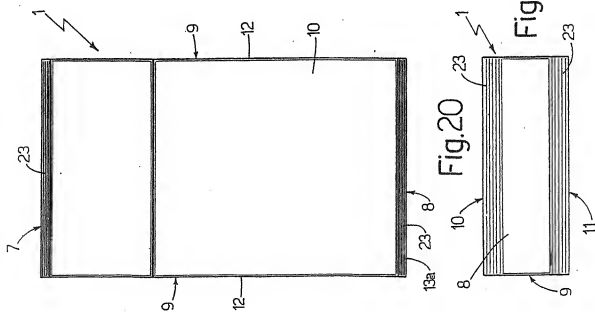
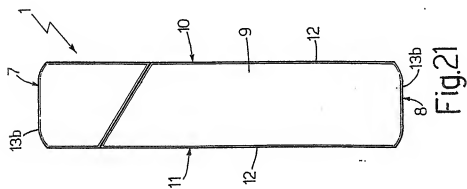
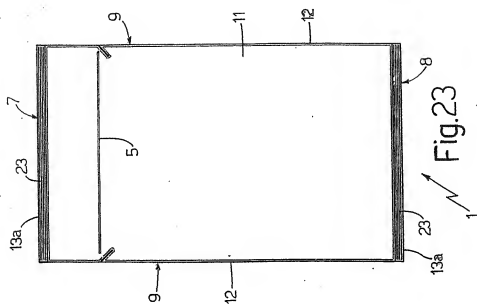
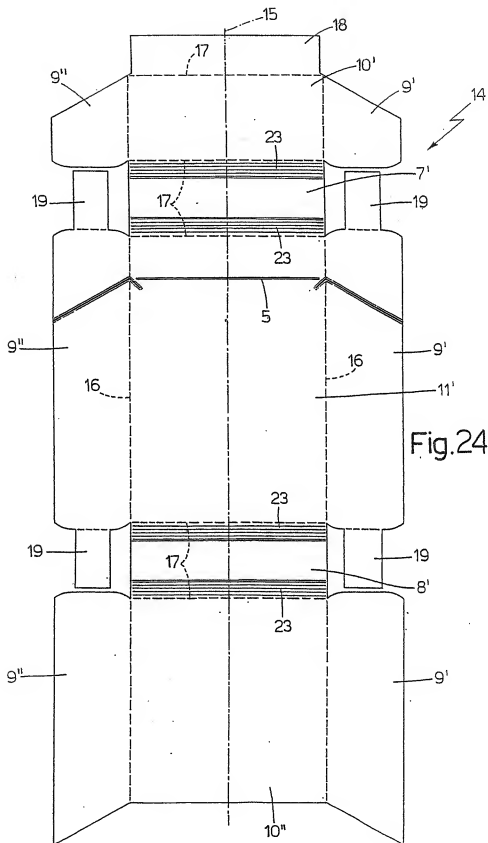


Fig. 19

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IT 02/00609

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 B65D85/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 764 595 A (6D SPA) 26 March 1997 (1997-03-26)	1,2,5,6, 9,10, 12-14
Y	column 1, line 3 - line 35; claims 1-7; figures 1-6	4,8,11, 16
Y	GB 2 175 884 A (TABAC FAB REUNIES SA) 10 December 1986 (1986-12-10)	1,3-5, 7-13,15, 16
	page 1, line 82 - line 116; claim 3; figures 3-5	
Y	DE 29 40 797 A (HAUMANN MICHAEL;GARDEWEG ANDREAS) 23 April 1981 (1981-04-23) page 3, paragraph 2 -page 4, paragraph 2; claim 1; figures 1-7	1-16
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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## INTERNATIONAL SEARCH REPORT

International Application No.

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